Payson
Municipal Airport

Chapter Three
AVIATION FACILITY REQUIREMENTS

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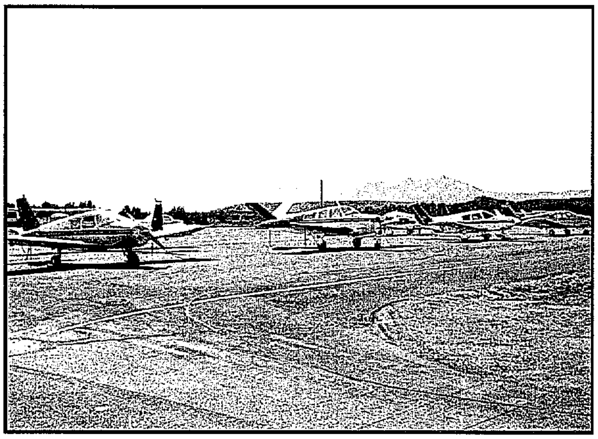

In the previous chapter, forecasts of aviation demand were presented for Payson Municipal Airport through the year 2020. In this chapter, existing components of the airport and their individual capacities are identified and described. These capacities are compared to forecast demand levels to determine where deficiencies in airport facilities exist or are expected to materialize. Once deficiencies in airport facilities are identified, a more specific determination of the approximate sizing and timing of the new facilities can be made.

The objective of this effort is to identify, in general terms, the adequacy or inadequacy of existing airport facilities, outline what new facilities may be needed, and establish when these may be needed to accommodate forecast demands. After identifying facility requirements, alternatives for providing these facilities will be evaluated (Chapter Four). The alternatives evaluation will help determine the most functional and efficient means for implementing further development of the facility.

Recognizing that the need to develop facilities is determined by demand, rather than a point in time, the requirements for new facilities have been expressed for the short, intermediate, and long term planning horizons, which roughly correlate to five-year, ten-year, and twenty-year time frames. Future facility needs will be related to these activity levels rater than a specific year. **Table 3A** summarizes the activity levels that define the planning horizons used in the remainder of this master plan.

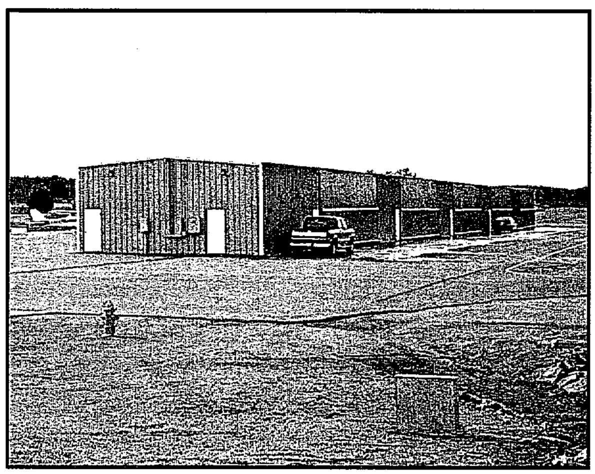

TABLE 3A Planning Horizon Activity Levels	Short Term Planning Horizon	Intermediate Term Planning Horizon	Long Term Planning Horizon
Based Aircraft	65	80	100
Annual Operations	27,500	37,300	50,000

AIRFIELD REQUIREMENTS

Airfield requirements include the need for facilities related to the arrival, departure, and ground movement of aircraft. The following facilities are associated with the airfield:

- Runways
- Taxiways
- Airfield Lighting and Markings
- Navigational Aids

AIRFIELD DESIGN STANDARDS

The Federal Aviation Administration (FAA) has established criteria for use in sizing and design of airfield facilities. The selection of appropriate FAA design standards for the development of airfield facilities is based upon the characteristics of the aircraft currently using, or projected to use, the airport. Establishing correct design standards is very important, since they are used to plan separation distances between facilities which could be costly to relocate at a later date.

The most important characteristics in airfield planning are the approach speed and wingspan of the critical design aircraft anticipated to use the airport now or in the future. An aircraft's approach category is based upon 1.3 times its stall speed in the landing configuration at the particular aircraft's maximum certified weight. There are five approach categories defined as follows:

Category A: Speed less than 91 knots.

Category B: Speed 91 knots or more, but less than 121 knots.

Category C: Speed 121 knots or more, but less than 141 knots.

Category D: Speed 141 knots or more, but less than 166 knots.

Category E: Speed 166 knots or more.

The second basic design criteria relates to the size of an airplane, in particular, the aircraft's wingspan. There are six airplane design groups defined as follows:

Group I: Wingspans up to but not including 49 feet.

Group II: Wingspans from 49 feet up to but not including 79 feet.

Group III: Wingspans from 79 feet up to but not including 118 feet.

Group IV: Wingspans from 118 feet up to but not including 171 feet.

Group V: Wingspans from 171 feet up to but not including 214 feet.

Group VI: Wingspans from 214 feet up to but not including 262 feet.

FAA AC *150/5300-13*, *Airport Design*, identifies a coding system which is used to relate airport design criteria to the operational and physical characteristics of aircraft intended to operate at the airport. This code, called the Airport Reference Code (ARC), has two components: the first component, depicted by letter, is the aircraft approach category, defined above; the second component, depicted by a Roman numeral, is the airplane design group.

Generally, aircraft approach speed applies to runways and runway-related facilities, while airplane design group relates to the separation criteria involving taxiways and taxilanes. In order to determine facility requirements, the ARC should first be determined then airport design criteria can be applied.

Common piston engine, turboprop, and jet general aviation aircraft, as well as their approach speed, wingspan, maximum takeoff weight, and ARC are summarized in **Table 3B**. Payson Municipal Airport is currently utilized by all types of general aviation aircraft ranging from small single-engine piston aircraft to the occasional turboprop and business jet aircraft. The turboprop and business jets are the most demanding aircraft to operate at the airport, however, their present use of the airport is occasional and does not comprise at least 500 annual operations (500 annual operations is used by the FAA to define the critical aircraft).

In the past, airfield facilities at the airport have been designed to accommodate aircraft within ARC B-II. This ARC can accommodate all single and multi-engine piston engine general aviation aircraft, all turboprop business aircraft, and a limited number of business jets. As shown in **Table 3B**, the business jet aircraft that fall within the B-II category include the Cessna Citation and Dassault Falcon models 10, 20, and 900. While the potential exists for larger business jet aircraft to use the airport, it will be unlikely that business jet aircraft, which fall within Approach Categories C and D, will comprise at least 500 annual operations at the airport. Therefore, a B-II ARC is sufficient to meet the requirements of aircraft expected to use the airport through the planning period.

RUNWAYS

The adequacy of the existing runway system was analyzed from a number of perspectives including airfield capacity, runway orientation, runway length, runway width, and pavement strength. From this information, requirements for runway improvements were determined for the airport.

Airfield Capacity

A demand/capacity analysis measures the capacity of the airfield facilities (i.e. runways and taxiways) in order to identify a plan for additional development needs. The capacity of

TABLE 3B Representative General Aviation Aircraft by Airport Reference Code				
Airport Reference Code	Typical Aircraft	Approach Speed (knots)	Wingspan (feet)	Maximum Takeoff Weight (lbs.)
	Single-Engine Piston			
A-I	Cessna 150	55	32.7	1,600
A-I	Cessna 172	64	35.8	2,300
A-I	Beechcraft Bonanza	75	37.8	3,850
	Multi-Engine Piston			
B-I	Beechcraft Baron 58	96	37.8	5,500
B-I	Piper Navajo	100	40.7	6,200
B-I	Cessna 421	96	41.7	7,450
	Turboprop			
B-I	Mitsubishi MU-2	119	39.2	10,800
B-I	Piper Cheyenne	119	47.7	12,050
B-I	Beechcraft King Air B-100	111	45.8	11,800
	Business Jets			
B-I	Cessna Citation I	108	47.1	11,850
B-I	Falcon 10	104	42.9	18,740
	Turboprop			
B-II	Beechcraft Super King Air	103	54.5	12,500
B-II	Cessna 441	100	49.3	9,925
	Business Jets			
B-II	Cessna Citation II	108	51.7	13,330
B-II	Cessna Citation III	114	53.5	22,000
B-II	Falcon 20	107	53.5	28,660
B-II	Falcon 900	100	63.4	45,500
	Business Jets			
C-I	Learjet 55	128	43.7	21,500
C-I	Rockwell Sabre 75A	137	44.5	23,300
C-I	Learjet 25	137	35.6	15,000
	Turboprop			
C-II	Rockwell 980	121	52.1	10,325
	Business Jets			
C-II	Canadair Challenger	125	61.8	41,250
C-II	Gulfstream III	136	77.8	68,700
	Business Jets			
D-I	Learjet 35	143	39.5	18,300
D-II	Gulfstream II	141	68.8	65,300
D-II	Gulfstream IV	145	78.8	71,780

the airfield is affected by several factors including airfield layout, meteorological conditions, aircraft mix, runway use, aircraft arrivals, aircraft touch-and-go activity, and exit taxiway locations. An airport's airfield capacity is expressed in terms of its annual service volume. Annual service volume is a reasonable estimate of the maximum level of aircraft operations that can be accommodated in a year.

Pursuant to FAA guidelines detailed in the FAA *Advisory Circular 150/5060-5, Airport Capacity and Delay*, the annual service volume of a single runway configuration normally exceeds 230,000 operations. Since the forecasts for the airport indicate that the activity throughout the planning period will remain below 230,000 annual operations, the capacity of the existing airfield system will not be reached, and the airfield can meet operational demands. Therefore, the facility requirements analysis will concentrate on developing the appropriate facilities to improve safety and service considerations rather than demand variations.

Runway Orientation

The airport is presently served by a single runway, Runway 6-24, oriented in a northeast-southwest direction. For the operational safety and efficiency of an airport, it is desirable for the principal runway of an airport's runway system to be oriented as close as possible to the direction of the prevailing wind. This reduces the impact of wind components perpendicular to the direction of travel of an aircraft that is landing or taking off (defined as a crosswind).

The FAA recommends planning for additional runway orientations when the primary runway orientation provides less than 95 percent wind coverage (in certain crosswind components) for any aircraft forecast to use the airport on a regular basis. For planning and design, a crosswind component is considered excessive at 10.5 knots (12 mph) for ARC's A-I and B-I; 13 knots (15 mph) for ARC's A-II and B-II; and 16 knots (18 mph) for ARC's C-I through D-II.

Exhibit 3A depicts the airport wind rose using wind data collected at the airport site from May 1, 1984 to June 30, 1986. Based upon this wind data, an additional runway is not needed at the airport to meet the FAA requirement listed above. While the previous master plan indicated that an additional runway would not be needed, airport users and the Airport Advisory Board had suggested at that time that a crosswind runway be retained on the airport plan.

Current development constraints will preclude the development of a crosswind runway at the airport. The crosswind runway was planned for an area which will now be occupied by the Payson Skyranch. In addition, the descending terrain to the south and the required amount of fill to develop a crosswind runway is cost-prohibitive.

Runway Length

The determination of runway length requirements for an airport are based on five primary factors: airport elevation; mean maximum temperature of the hottest month; runway gradient (difference in elevation of each runway end); critical aircraft type expected to use the airport, and stage length of the longest nonstop trip destinations. Aircraft performance declines as elevation, temperature, and runway gradient factors increase.

Using data specific to Payson Municipal Airport, runway length requirements for the various classifications of aircraft that may operate at the airport were examined using the FAA Airport Design computer program Version 4.2A which groups general aviation aircraft into several categories, reflecting the percentage of the fleet within each category and useful load of the aircraft. **Table 3C** summarizes FAA recommended runway lengths for Payson Municipal Airport.

TABLE 3C
Runway Length Requirements

Airport Elevation	5,157 feet
Mean Daily Maximum Temperature of the Hottest Month	91° F
Runway Gradient	22 feet
Small airplanes with less than 10 passenger seats	
75 percent of these small airplanes	4,700 feet
95 percent of these small airplanes	6,500 feet
100 percent of these small airplanes	6,600 feet
Small airplanes with 10 or more passenger seats	6,600 feet
Large airplanes between 12,500 and 60,000 pounds	
75 percent of these large aircraft at 60 percent useful load	7,000 feet
100 percent of large aircraft at 60 percent useful load	11,200 feet

Small Aircraft - Aircraft less than 12,500 pounds
Source: FAA Airport Design computer program Version 4.2A.

At its present length of 5,500 feet, Runway 6-24 can accommodate the majority of small general aviation aircraft on the warmest days of the year (refer to 75 percent of small airplanes) but falls short of fully accommodating many larger piston-engine, turboprop, or business jet aircraft operations which are restricted on the warmest days of the year (refer to 100 percent of small aircraft and 75 percent of large aircraft). In general, the existing runway length is sufficient for departures when temperatures are mild and destinations are to regional markets. To safely accommodate larger piston-engine, turboprop, or business jet aircraft, which are commonly used for business and corporate purposes, during summer months and without limiting aircraft loading or flights lengths, the FAA recommends a runway length of 6,600 feet.

Runway length requirements for common business jets within ARC B-II are summarized in **Table 3D**. These runway length requirements support the need for additional runway length above the existing 5,500 feet to the 6,600 feet recommended by the FAA. While an additional 1,100 feet of runway length would better serve the full-range of aircraft expected to serve the airport, it is improbable that an additional 1,100 feet can be accommodated at the airport site. An extension to the east is restricted by a considerable grade change. An extension to the west is restricted by a

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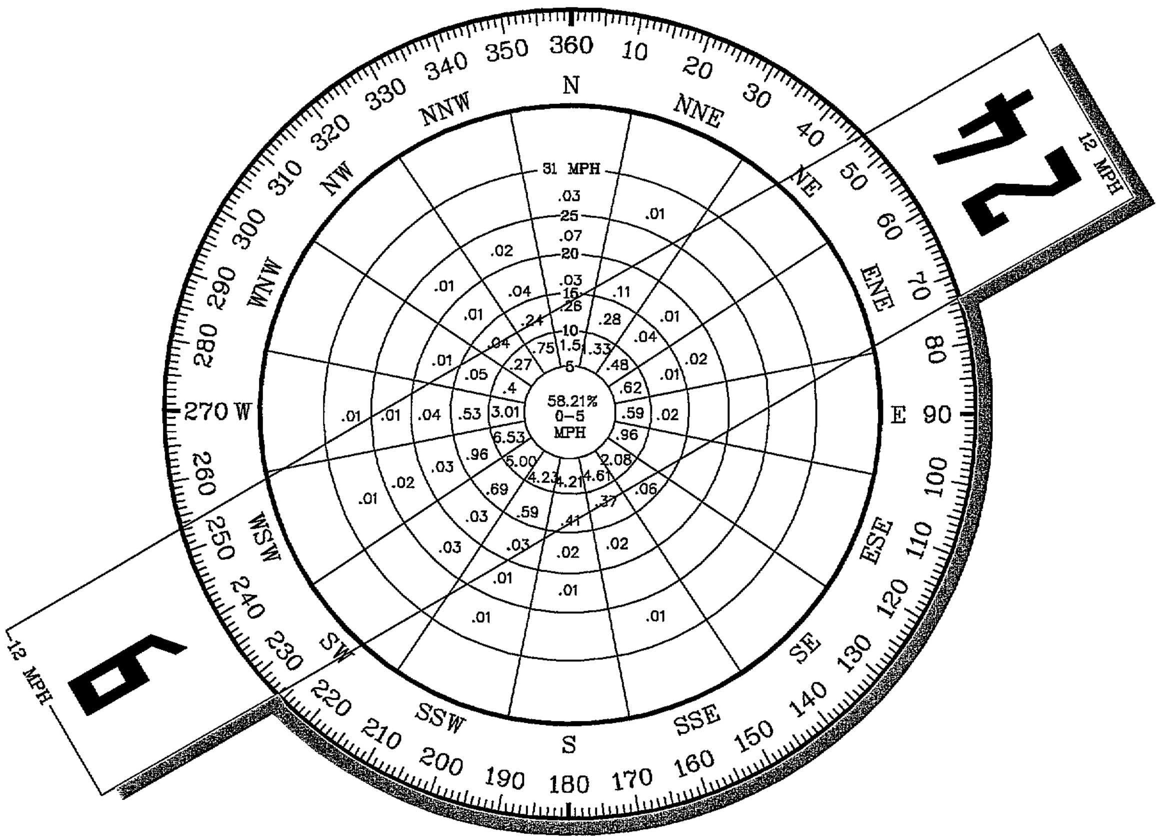
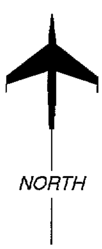
WIND COVERAGE	
	12 MPH
Runway 6–24	*98.86%*

SOURCE:
Wind Direction and Velocity Tapes
from Payson Municipal Airport
May 1, 1984 to June 30, 1986





Payson Municipal Airport

Exhibit 3A
WIND COVERAGE

grade change and development within the adjacent Sky Park Industrial and Mazatzal Mountain Air Park. The alternatives analysis will examine the feasibility of extending Runway 6-24 and determine the maximum length which can be obtained on the site.

Table 3D
Business Jet Runway Length Requirements

Business Jet	Takeoff Length (feet)
Cessna Citation I	7,500
Cessna Citation II	5,200
Cessna Citation III	5,540
Dassault Falcon 10	6,300
Dassault Falcon 20	5,800

Runway Width

Runway width is primarily determined by the planning ARC for the particular runway. The planning ARC for Runway 6-24 is B-II. ARC B-II design standards specify a runway width of 75 feet. Currently, Runway 6-24 is 75 feet wide.

Pavement Strength

The most important feature of airfield pavement is its ability to withstand repeated use by aircraft of significant weight. A recent pavement evaluation completed for this master plan study examined airport pavement to determine overall condition and strength. The pavement evaluation considered visual inspections and actual pavement borings in evaluating airfield pavement. The pavement evaluation concluded that all airfield pavements are in good to excellent condition with only a need for periodic crack sealing and slurry sealing.

Due to variation in pavement thickness and subbase materials, pavement strengths vary at the airport. The pavement evaluation determined that all aircraft under 30,000 pounds can be accommodated on the runway. For aircraft greater than 30,000 pounds, pavement strength is expressed according to landing gear configuration. For aircraft with a single wheel on each main landing gear (single wheel loading (SWL), runway pavement strength varies from 40,000 pounds to 75,000 pounds. For aircraft with two wheels on each main landing gear, referred to as dual wheel loading (DWL), pavement strength varies from 50,000 pounds to 150,000 pounds. For aircraft with a tandem set of dual wheels on each main landing gear, referred to as dual tandem wheel loading (DTL), runway pavement strength varies from 100,000 to 200,000 pounds. These pavement strengths are sufficient for the current and future mix of aircraft to use the airport.

The parallel taxiway pavement strength varies greatly from the runway. The parallel taxiway cannot accommodate aircraft over 30,000 pounds with pavement strength varying from 4,000 to 24,000 pounds along the entire length of the parallel taxiway. The parallel taxiway pavement strength should be upgraded to the runway pavement strength.

All aprons, with the exception of the recently completed apron expansions which were constructed to 12,500 pounds SWL, can accommodate aircraft to 30,000 pounds. The hangar apron can accommodate larger aircraft to 40,000 pounds SWL, 50,000 pounds DWL, and 100,000 pounds DTL. The apron west of the recreational area is rated for aircraft to 24,000 pounds. These pavement strengths are sufficient. Any future aprons should be constructed with pavements strengths similar to the runway.

TAXIWAYS

Taxiways are primarily constructed to facilitate aircraft movements to and from the runway system. Parallel taxiways enhance airfield capacity and are essential to aircraft movement about an airfield. Exit taxiways reduce the amount of time that an aircraft occupies the runway. Runway 6-24 is served by a full-length parallel taxiway located 150 feet south of the runway and four entrance/exit taxiways. The parallel taxiway is 40 feet wide.

Design standards for taxiway width and the separation distances between runways and parallel taxiways are based primarily on the Airplane Design Group (ADG). Design group II has been designated for Runway 6-24. Design standards specify a taxiway width of 35 feet and runway/parallel taxiway separation distance of 240 feet. The existing runway/parallel taxiway separation distance does not meet minimum design standards. The latest approved Airport Layout Plan includes a modification to the FAA design standards for the existing runway/parallel taxiway separation distance. The parallel taxiway width exceeds minimum design standards.

While the number of runway exits is sufficient for current activity levels and aircraft mix, additional exits placed midway between the midfield taxiway and each runway end would improve airfield efficiency. These additional taxiways would allow aircraft to exit the runway without taxiing to the runway end. In addition, many smaller aircraft may be able to use these exits and not be required to taxi to the midfield taxiway exit.

The runway entrance/exit taxiways at each runway end have been widened to provide an area for aircraft to prepare for departure while allowing other aircraft which are ready for departure to bypass. These areas should be maintained through the planing period.

The City-owned Bravo Taxiway provides access to the airfield from the Sky Park Industrial Park and is used by residents of the Mazatzal Mountain Air Park. This taxiway will need to be maintained through the planning period. Residents of the proposed Payson Skyranch will have access to the airfield via taxiways extending from Payson Skyranch to each runway end. As proposed, these taxiways would be constructed and maintained by Payson Skyranch.

NAVIGATIONAL AIDS AND INSTRUMENT APPROACH PROCEDURES

Electronic navigational aids are used by aircraft during an approach to the airport. Such facilities are vital to the success of the airport and provide additional safety to passengers using the air transportation system and enhance the capacity and safety of the airfield. While instrument approach aids are especially helpful during poor weather, they are often used by pilots when visibility is good. Currently, there are no instrument approaches to the airport. Therefore, the airport is effectively closed during poor weather conditions when visual flight can no longer be conducted. The FAA is developing Global Positioning System (GPS) approaches to Runways 6 and 24. The initial GPS approaches being developed by the FAA provide only course guidance information. By the year 2000, it is expected that GPS approaches will also provide descent information.

The airport-owned non-directional beacon (NDB), located on the east side of the airport, provides directional guidance to pilots during visual conditions. The long range need for this facility will be dictated by the number of users and maintenance costs. The FAA is proceeding with a program to transition to GPS and phase-out existing ground-based navigational aids such as the NDB. The FAA program calls for all FAA-owned NDB's to be phased-out by the year 2005.

Helipad

Considering the type of helicopters using the airport, which includes military turbine-powered helicopters, the size of the existing airport helipad is sufficient through the planning period. In addition, the perimeter fencing and lighting are sufficient and enhance the safety of operations to the helipad. A pulsating visual approach slope indicator (PLASI) is commonly installed at airport helipads to assist pilots in landing safely on the helipad. Therefore, facility planning should include installing a PLASI system at the helipad. An additional helipad should be considered to provide parking for more than one helicopter.

LIGHTING AND MARKING

Currently, there are a number of lighting and pavement markings aids serving pilots and aircraft using the Payson Municipal Airport. These lighting and marking aids assist pilots in locating the airport during night or poor weather conditions, as well as assist in the ground movement of aircraft. The current and future lighting and marking requirements for the airport are summarized below.

Identification Lighting

The airport is equipped with a rotating beacon to assist pilots in locating the airport at night. The existing rotating beacon is adequate and should be maintained in the future.

Airfield Lighting

Runway 6-24 is equipped with threshold lighting and medium intensity runway lighting (MIRL). These lighting systems are sufficient and should be maintained through the planning period.

With the exception of the midfield taxiway, taxiway pavement edge lighting is not provided at the airport. Facility planning should include the installation of pavement edge lighting along the parallel taxiway and remaining runway entrance/exit taxiways.

While pavement edge lighting is not provided along the apron, the existing apron lighting is sufficient for aircraft operations at night and should be maintained.

Visual Approach Lighting

Visual glide slope indicators (VGSI) are a system of lights located at the side of the runway which provide visual descent guidance information to pilots during an approach to the runway. Runway 24 is equipped with a type of VGSI known as a precision approach path indicator (PAPI). Runway 6 is not equipped with a VGSI system. The existing PAPI to Runway 24 is sufficient and should be maintained through the planning period. A similar system should be installed to the Runway 6 end.

Runway End Identification Lighting

Runway identification lighting provides the pilot with a rapid and positive identification of the runway end. The most basic system involves runway end identifier lights (REIL's). REIL's are normally installed to runways with an instrument approach. REIL's should be installed to each runway end to enhance the safety of future GPS approaches to the airport.

Pavement Markings

Currently, Runway 6-24 is equipped with nonprecision runway markings that identify the runway centerline, designation, touchdown zone, threshold, and aircraft holding positions. The markings are sufficient for the future GPS approaches and should be maintained through the planning period.

CONCLUSIONS

A summary of the airfield facility requirements is presented on **Exhibit 3B**. Additional runway length is needed to adequately serve the full-range of aircraft which fall within the planning ARC for the airport without reducing flight lengths or loading capabilities. Ultimately, a GPS approach should be established for approaches to Runway 6 and be comparable to the GPS approach currently being established for Runway

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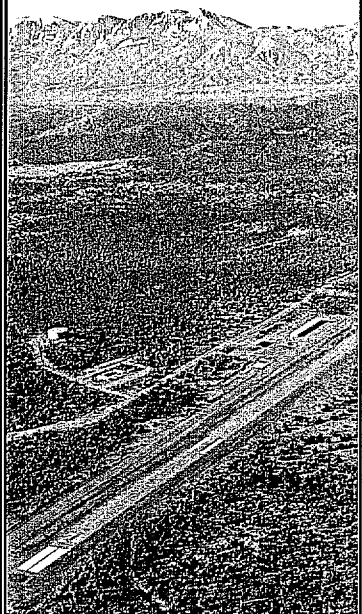
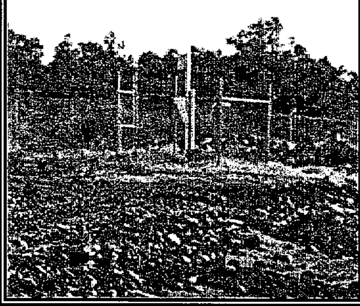
	EXISTING	SHORT-TERM NEED	LONG-TERM NEED
RUNWAYS AND TAXIWAYS			
	**RUNWAY 6-24** • 5,500' X 75' • Full-length parallel taxiway (A) • Four entrance/exit taxiways • Taxiway B • Helipad	**RUNWAY 6-24** • Same • Additional Pavement Strength • Same	**RUNWAY 6-24** • 6,600' X 75' • Additional Exit Taxiways • Additional Helipad
NAVIGATIONAL AIDS, AIRFIELD LIGHTING & MARKING			
	• Rotating Beacon • PAPI (Runway 24) • Nondirectional Beacon (NDB) • Medium Intensity Runway Lighting • Nonprecision Runway Markings	• Same • PAPI (Runway 6) • PLASI (Helipad) • Global Positioning System Approaches (Runways 6 and 24) • Medium Intensity Taxiway Lighting • Same	• Same • REIL's (Runway 6 and 24) • Phase-out NDB • Same • Same

Payson Municipal Airport

Exhibit 3B
AIRFIELD REQUIREMENTS

24. Pavement edge lighting is needed along the parallel taxiway and runway entrance/exit taxiways which are currently without lighting. A PAPI to the Runway 6 end would complement the existing PAPI to the Runway 24 end. REIL's installed at each runway end would aid pilots in correctly identifying each runway end during poor weather conditions and enhance the safety of future GPS approaches.

LANDSIDE REQUIREMENTS

Landside facilities are those necessary for handling of aircraft and passengers while on the ground. These facilities provide the essential interface between the air and ground transportation modes. The capacities of the various components of each area were examined in relation to projected demand to identify future landside facility needs.

AIRCRAFT STORAGE HANGARS

The space required for hangar facilities is dependent upon the number and type of aircraft expected to be based at the airport. Weather conditions vary at the airport from winter's snow and ice to summer's strong rains, wind, and temperatures. Therefore, they play an important role in the decision to hangar an aircraft. Generally most aircraft owners prefer to hangar their aircraft as opposed to tying them down outside to ensure the security of their aircraft and protect the aircraft from these varying weather conditions. A 10-unit T-hangar facility provides the only enclosed aircraft storage on the airport.

T-hangars provide the aircraft owner more privacy and greater ease in obtaining access to aircraft than do conventional hangars. The principal uses of conventional hangars at general aviation airports are for large aircraft storage, storage during maintenance, and for housing fixed base activities. Currently, approximately 19 percent of based aircraft are stored in hangars. Future hangar requirements were determined based on the assumption that this percentage would grow to approximately 60 percent of total based aircraft.

Table 3E estimates future hangar requirements for the airport. A planning standard of 1,200 square feet per based aircraft stored in T-hangars has been used to determine future T-hangar requirements. A planning standard of 2,500 square feet for large aircraft stored in conventional hangars has been used to determine future conventional hangar requirements. Conventional hangar area was increased by 10 percent to account for future aircraft maintenance needs.

AIRCRAFT PARKING APRON

A parking apron should be provided for at least the number of locally-based aircraft that are not stored in hangars, as well as transient aircraft. Currently, there are approximately 44 based aircraft occupying tiedowns at the airport. Although the majority of future based aircraft were assumed to be stored in an enclosed hangar, a number of based aircraft will still tiedown outside. Total apron area requirements were determined by applying the FAA planning criterion of 700 square yards per transient aircraft parking position and 500 square yards for each locally-based aircraft parking position. The results of this analysis are presented in **Table 3F.**

TABLE 3E
Aircraft Storage Hangar Requirements

			Future Requirements		
	Currently Available	**Current Requirements**	**Short Term**	**Intermediate Term**	**Long Term**
Aircraft to be Hangared		24 [2]	32	44	60
T-Hangar Positions	10	24	28	38	49
Conventional Hangar Positions	0	0	4	6	11
Conventional Hangar Area (s.f.) [1]	0	2,500 [3]	6,700	10,800	18,800
T-Hangar and Shade Hangar Area (s.f.)	10,500	28,800	33,600	45,600	58,800
Total Hangar Area (s.f.)	10,500	31,300	40,300	56,400	77,600

[1] Includes area for aircraft maintenance
[2] Includes 14 aircraft on airport hangar waiting list
[3] Minimum requirement for aircraft maintenance facility

TABLE 3F
Apron Requirements

			Future Requirements		
	Currently Available	**Current Requirements**	**Short Term**	**Intermediate Term**	**Long Term**
Transient Apron					
Positions	23 [1]	15	19	25	33
Apron Area (s.y.)	11,200	10,500	13,300	17,500	23,100
Locally-Based Aircraft Apron					
Positions	58	44	33	36	40
Apron Area (s.y.)	23,400	22,000	16,500	18,000	20,000
Total Positions	81	59	52	61	73
Total Apron Area (s.y.)	34,600	32,500	29,800	35,500	43,100

[1] Includes apron at recreational area

TERMINAL FACILITIES

Terminal building space is required for waiting passengers, pilot's lounge and flight planning, concessions, management, storage, and various other needs. This space is not necessarily limited to a single, separate terminal building but also includes the space offered by fixed base operators for these functions and services. General aviation services are provided from a newly-constructed 470 square-foot facility along the transient apron.

The methodology used in estimating general aviation terminal facility needs was based on the number of airport users expected to utilize general aviation facilities during the design hour. Future space requirements were then based upon providing 90 square feet per design hour itinerant passenger. **Table 3G** outlines requirements for general aviation terminal services at the airport through the planning period.

TABLE 3G
Terminal Requirements

			Future Requirements		
	Currently Available	Current Requirement	Short Term	Intermediate Term	Long Term
Design Hour Passengers		25	33	47	70
Building Space (s.f.)	470	2,200	3,000	4,200	6,300

VEHICLE PARKING

Public vehicle parking is only available at the airport restaurant. Access to apron areas is available for based aircraft owners. Public parking is not available at the terminal building. Vehicle parking requirements for future terminal facilities have been determined utilizing a planning standard of 1.3 spaces per design hour passenger. A planning standard of 350 square feet for each parking position was used to determine total parking area and account for drive lanes. Vehicle parking requirements for hangars and other aviation facilities at the airport were determined as a percentage of based aircraft utilizing the same multiplier described above. **Table 3H** outlines vehicle parking requirements for the airport.

FUEL STORAGE

Fuel storage capability at the airport includes three 5,000 gallon underground storage tanks. These tanks are owned by the Town of Payson and leased to the fixed base operator. The Town of Payson will close these tanks in 1998 to comply with current Environmental Protection Agency (EPA) regulations.

TABLE 3H
Vehicle Parking Requirements

	Currently Available	Current Requirement	Short Term	Intermediate Term	Long Term
Design Hour Passengers		25	33	47	70
Terminal Vehicle Spaces	---	32	43	61	91
Parking Area (s.f.)	13,000 [1]	11,200	15,000	21,400	31,900
General Aviation Spaces	---	27	33	40	50
Parking Area (s.f.)	---	9,400	11,600	14,000	17,500
Total Parking Spaces	---	59	76	101	141
Total Parking Area (s.f.)	13,000	20,600	26,600	35,400	49,400

[1] Restaurant parking lot only

Table 3J estimates future fuel usage at the airport to determine future fuel storage needs.

While future fuel needs could be accommodated in storage tanks similar in size to the existing storage tanks (5,000 gallons), 10,000 or 12,000 gallon storage tanks should be considered as they can accommodate a full tanker load of fuel (8,000 gallons) while maintaining an adequate supply of fuel on-hand.

Perimeter Fencing

All existing perimeter fencing is to be replaced in 1998 with wildlife fencing. This fencing is 8-foot high and prevents wildlife from straying onto airport property. Concurrent with replacing the perimeter fencing is the replacement of the existing aircraft access gate along Bravo Taxiway and vehicle access gates located at Bravo Apron and the Transient Apron. These gates provide controlled access to the airport. Similar wildlife fencing should be placed around the perimeter of any future property purchases. Controlled access points should also be considered for future development areas with airfield access.

Table 3J
Fuel Storage Requirements

			Future Requirement		
	Currently Available	**Current Requirement**	**Short Term**	**Intermediate Term**	**Long Term**
Total Annual Operations		21,311	27,500	37,300	50,000
Average Monthly Operations		1,776	2,992	3,108	4,167
Requiring AVGAS		1,304	1,682	2,282	3,058
Requiring Jet A		472	610	827	1,108
Gallons Per Operation					
AVGAS		4.1	4.1	4.1	4.1
Jet A		4.1	4.1	4.1	4.1
Average Monthly Fuel Usage					
AVGAS		5,292	7,000	9,000	13,000
Jet A		1,916	2,000	3,000	5,000
Bi-weekly Fuel Storage Requirement					
AVGAS	---	2,646	3,500	4,500	6,500
Jet A	---	958	1,000	1,500	2,500
Total Bi-weekly Storage Requirement	15,000	3,604	4,500	6,000	9,000

CONCLUSIONS

A summary of landside facility requirements is presented on **Exhibit 3C.** A need exists for additional enclosed T-hangar storage and an on-airport maintenance facility. To accommodate forecast demand, enclosed T-hangar and conventional hangar space will be required through the planning period. While the number of tiedowns dedicated to locally-based aircraft appears sufficient through the planning period, additional larger tiedowns may be needed to serve the expected transient aircraft fleet mix through the planning period.

Currently, there is a need for additional terminal space as well as vehicle parking. Public parking is needed adjacent to aircraft tiedown and storage areas. These needs should increase through the planning period as based aircraft totals increase.

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	Existing	CURRENT NEED	SHORT-TERM NEED	INTERMEDIATE NEED	LONG-TERM NEED
AIRCRAFT STORAGE HANGARS					
T-hangar Positions	10	24 **	28	38	49
Conventional Hangar Positions	0	0	4	6	11
T-Hangar Area (s.f.)	10,500	28,800	33,600	45,600	48,800
Conventional Hangar Area (s.f.)*	0	2,500 ***	6,700	10,800	18,800
Total Hangar Area (s.f.)	10,500	31,300	40,300	56,400	77,600

* Includes area for aircraft maintenance
** Includes 14 aircraft on airport hangar waiting list
*** Minimum requirement for aircraft maintenance

APRON AREA	Existing	CURRENT NEED	SHORT-TERM NEED	INTERMEDIATE NEED	LONG-TERM NEED
Transient Apron Positions*	23	15	19	25	33
Locally-Based Aircraft Positions	58	44	33	36	40
Total Positions	81	59	52	61	73
Total Apron Area (s.y.)	34,600	32,500	29,800	35,500	43,100

* Includes apron at recreational area

TERMINAL FACILITIES	Existing	CURRENT NEED	SHORT-TERM NEED	INTERMEDIATE NEED	LONG-TERM NEED
Building Space (s.f.)	470	2,200	3,000	4,200	6,300

VEHICLE PARKING	Existing	CURRENT NEED	SHORT-TERM NEED	INTERMEDIATE NEED	LONG-TERM NEED
Terminal Vehicle Spaces		32	43	61	91
General Aviation Spaces		27	33	40	50
Total Parking Spaces		59	76	101	141
Total Parking Area (s.f.)*	13,000	20,600	26,600	35,400	49,400

* Restaurant parking only

Payson Municipal Airport

Exhibit 3C
LANDSIDE REQUIREMENTS